



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS

CERTIFICATE USA/0356/S-96, REVISION 14

East Building, PHH-23
1200 New Jersey Ave, SE
Washington, D.C. 20590

This certifies that the sources described have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in the regulations of the International Atomic Energy Agency¹ and the United States of America² for the transport of radioactive material.

1. Source Identification - Eckert & Ziegler Isotope Products Model HEG-XXX Series (A3000, A3000-1, A3015, A3015-1, A3023, A3024-1, A3024-2, A3024-3, and A3024-4), where XXX represents the radionuclide mass number.
2. Source Description - Cylindrical double encapsulations made of Type 304 or 304L stainless steel and fusion welded. Approximate external dimensions are 6.4 mm (0.25 in.) in diameter and 15.9 mm (0.625 in.) in length (Models A3000 and A3000-1); 6.0 mm (0.236 in.) in diameter and 8.0 mm (0.315 in.) in length (Models A3015 and A3015-1); 6.0 mm (0.236 in.) in diameter and 12.0 mm (0.473 in.) in length with one end having an internal 3-48 thread (Model A3023); and 6.0 mm (0.236 in.) in diameter and 10.0 mm (0.394 in.) in length (Models A3024-1, A3024-2, A3024-3, and A3024-4). Construction shall be in accordance with attached Isotope Products Laboratories Drawing Nos. 3000 (Sheet 3 or 4 of 10), 3015 (Sheet 3 or 4 of 8), 3023 (Sheet 3 of 7), or 3024 (Sheet 4 or 5 of 8).

¹ "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

CERTIFICATE USA/0356/S-96, REVISION 14

3. Radioactive Contents - The sources described by this certificate are authorized to contain any one of the following radionuclides in the chemical form identified and limited to the activity shown.

<u>Radionuclide</u>	<u>Form</u>	<u>Activity GBq (Ci)</u>	
Na-22	NaCl in gold or ceramic	3.7	(0.10)
Co-57	CoCl ₂ or CoO in ceramic or Co metal plated on Ni foil	11.1	(0.30)
Co-58	CoCl ₂ or CoO in ceramic	11.1	(0.30)
Co-60	CoCl ₂ or CoO in ceramic or 1 mm x 1mm Ni clad Co	22.2	(0.60)
Ge-68	GeO ₂ in silver	1.9	(0.05)
Ba-133	BaSO ₄ in ceramic	3.7	(0.10)
Cs-137	CsCl in gold or Cs in ceramic	22.2	(0.60)
Eu-152	Oxide in gold or ceramic	0.74	(0.020)
Ra-226	RaSO ₄ in gold or ceramic	1.9	(0.05)
Cf-252	Oxide in metal or ceramic	0.037	(0.001)
Actinides*	Oxides in gold or ceramic	1.9	(0.05)

*(Isotopes of Ac, Th, Pa, Np, U, Pu, Am, and Cm only)

4. Management System Activities - Records of Management System activities required by Paragraph 306 of the IAEA regulations shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.
5. Expiration Date - This certificate expires on June 30, 2024. Previous editions which have not reached their expiration date may continue to be used.

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This certificate is issued in accordance with paragraph(s) 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the June 25, 2019 petition by Eckert & Ziegler Isotope Products, Valencia, CA, and in consideration of other information on file in this Office.

Certified By:

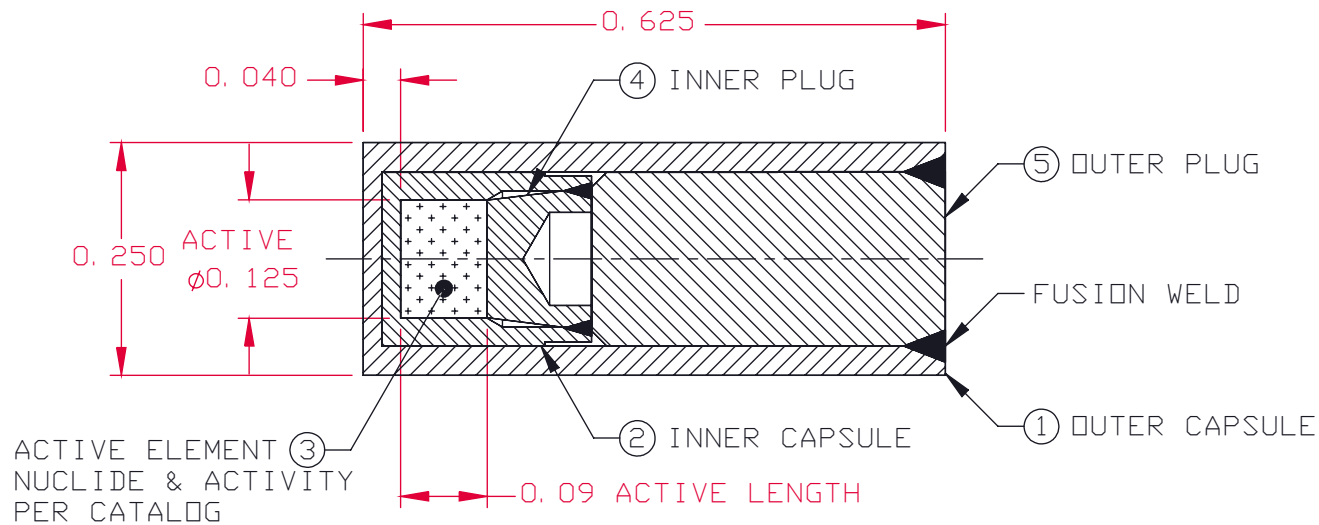


July 03, 2019

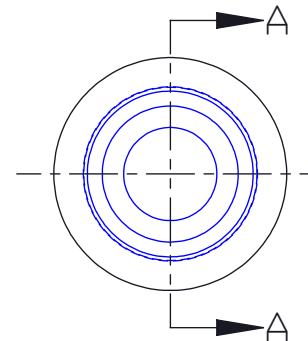
(DATE)

 William Schoonover
Associate Administrator for Hazardous
Materials Safety

Revision 14 - Issued to extend the expiration date and update Drawing
No. 3000.



SECTION A-A



SECTION A-A

3. IDENTIFY PART NUMBER
2. ALL CAPSULES AND PLUGS ARE MADE FROM 304 OR 304L STAINLESS STEEL AND THE ACTIVE ELEMENT IS CERAMIC
1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED

NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3000 ASSEMBLY, MODEL 225 POINT SOURCE

Eckert & Ziegler
Isotope Products
Valencia, California 91355

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

FRAC- TION	TOLERANCES ON DECIMAL			ANGLE
	X	XX	XXX	
±1/64	±.1	.01	.002	±.5°

THIRD ANGLE PROJECTION



DESIGN
EZ/DI

DRAWING TITLE
MODEL 225 POINT SOURCE

SCALE
NONE

SERIES TITLE
INDUSTRIAL SOURCES, HIGH INTENSITY
GAMMA AND NEUTRON

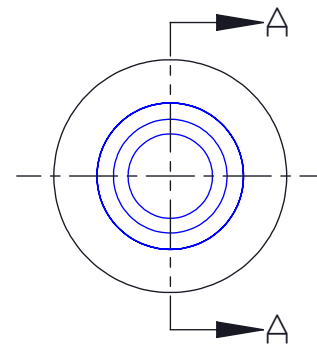
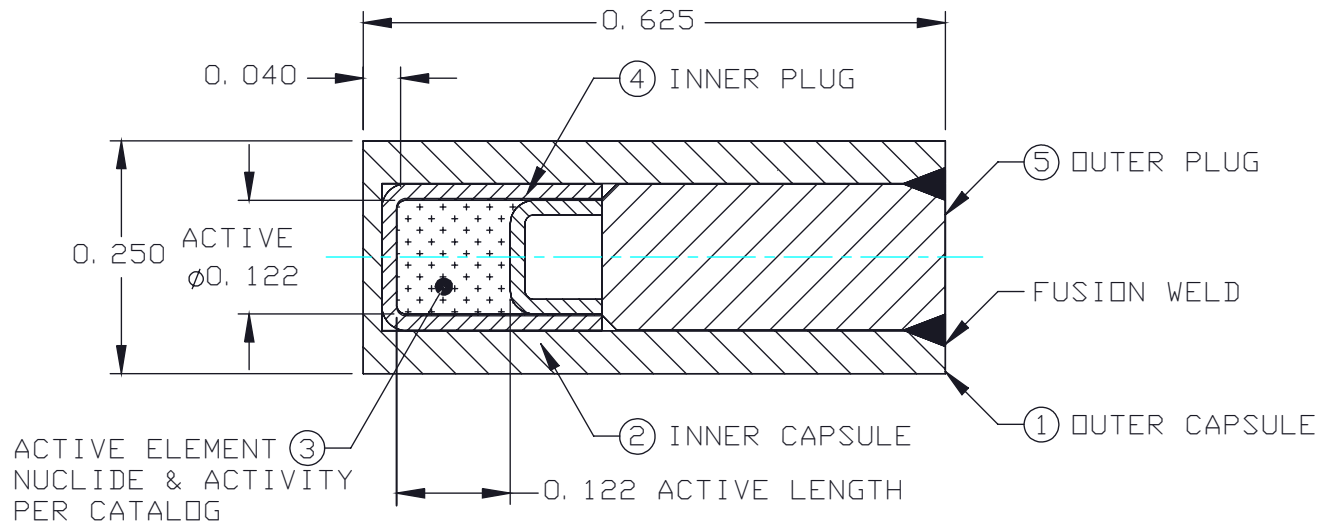
SIZE
A

CAGE CODE
32993

REVISION
L

DRAWING NUMBER
3000

SHEET
3 OF 10



SECTION A-A

SECTION A-A

3. IDENTIFY PART NUMBER
2. ALL CAPSULES AND PLUGS ARE MADE FROM 304 OR 304L STAINLESS STEEL AND THE ACTIVE ELEMENT IS CERAMIC
1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED

NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3000-1 ASSEMBLY, MODEL 225 POINT SOURCE

Eckert & Ziegler

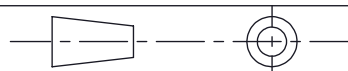
Isotope Products

Valencia, California 91355

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

FRAC-TION	TOLERANCES ON DECIMAL			ANGLE
	X	XX	XXX	
±1/64	±.1	.01	.002	±.5°

THIRD ANGLE PROJECTION



DESIGN
EZ/DI

SCALE
NONE

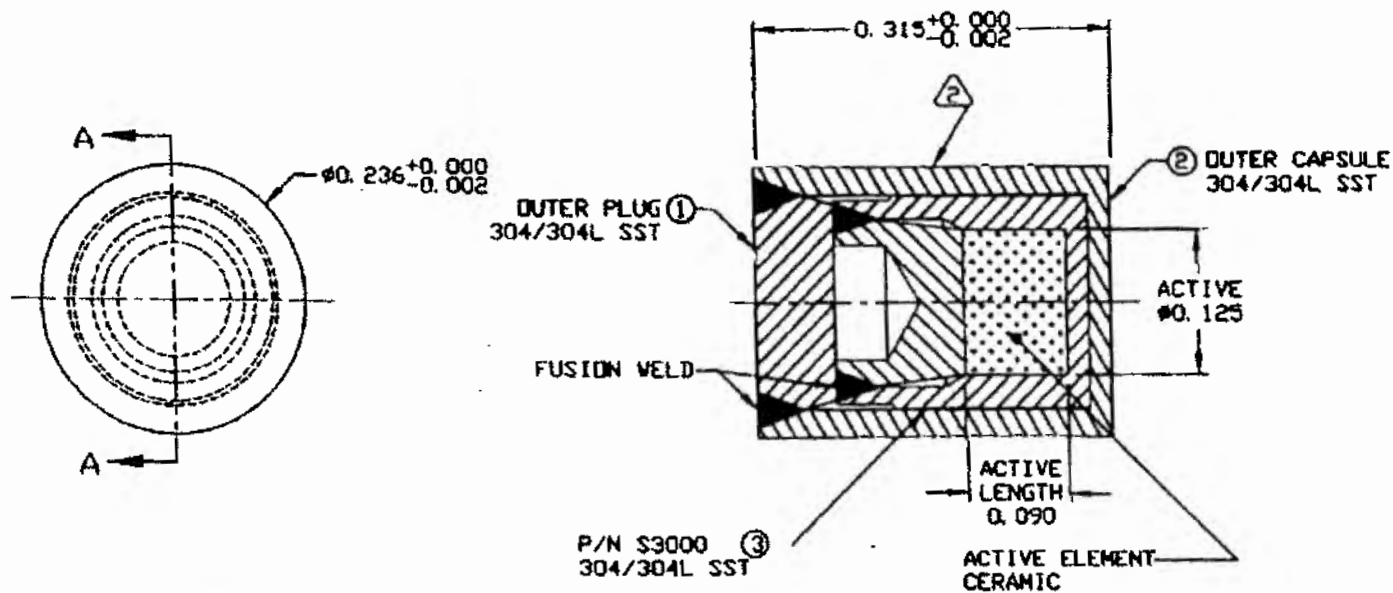
SIZE
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DRAWING TITLE
MODEL 225 POINT SOURCE

SERIES TITLE
INDUSTRIAL SOURCES, HIGH INTENSITY
GAMMA AND NEUTRON

CAGE CODE	REVISION	DRAWING NUMBER	SHEET
32993	L	3000	4 OF 10

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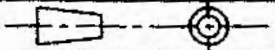


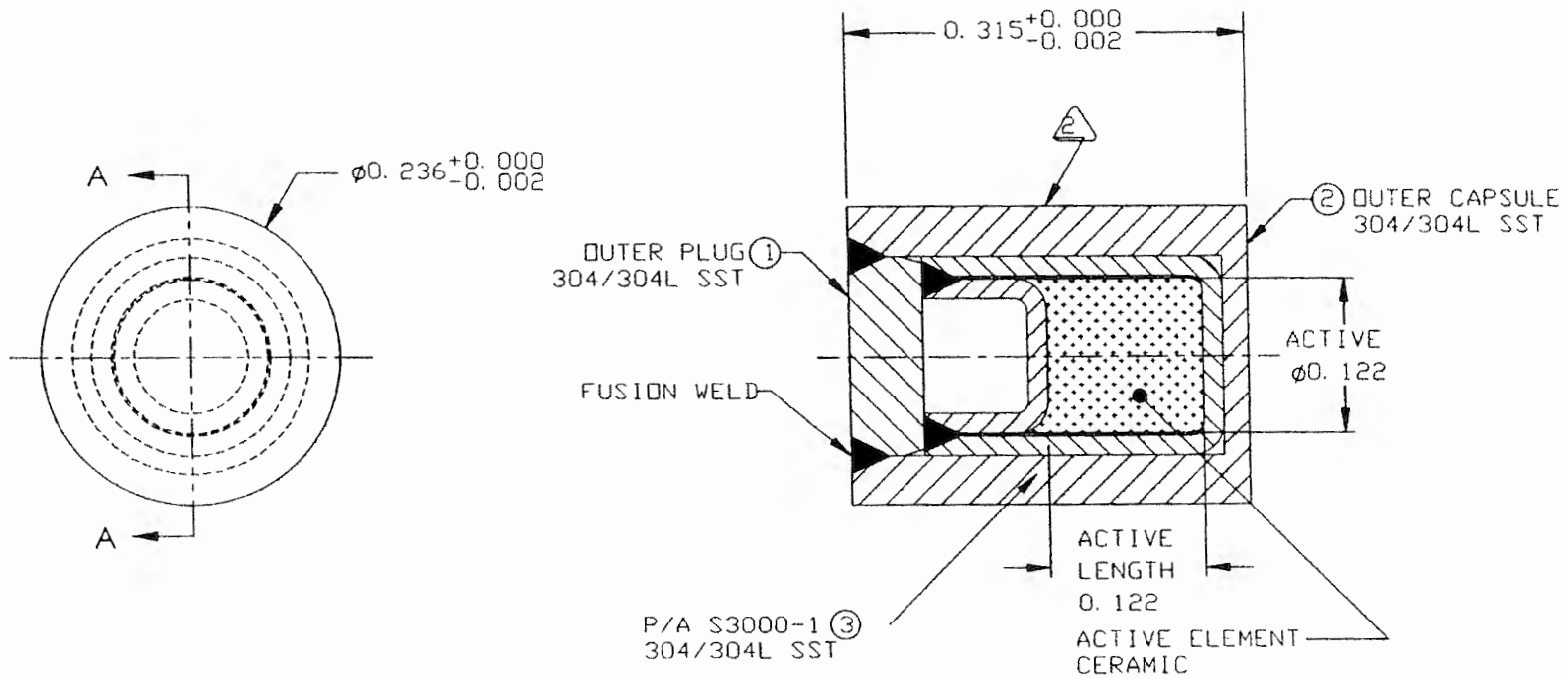
SECTION A-A

3. IDENTIFY PART NUMBER
 ② ENGRAVE CHARACTERS 0.060 HIGH x 0.003 DEEP MAXIMUM AS SHOWN
 IPL NUCLIDE ACTIVITY SERIAL NUMBER
 1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND PER PROCEDURE

NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3015 ASSEMBLY

 Isotope Products Laboratories An Eckert & Ziegler Company VALENCIA, CALIFORNIA 91355	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DESIGN EZ/DI	DRAWING TITLE SPECIAL 225 CAPSULE, GAMMA POINT SOURCE		
	TOLERANCES ON		SCALE NONE	SERIES TITLE INDUSTRIAL SOURCES, HIGH INTENSITY GAMMA AND NEUTRON		
	FRAC- TION ±1/64	DECIMAL X .01 .002	ANGLE ± 5°	SIZE A	CAGE CODE 32993	REVISION G
THIRD ANGLE PROJECTION 				DRAWING NUMBER 3015	SHEET 3 OF 8	




3. IDENTIFY PART NUMBER

△ ENGRAVE CHARACTERS 0.060 HIGH x 0.003 DEEP MAXIMUM
AS SHOWN:
IPL NUCLIDE ACTIVITY SERIAL NUMBER

1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING
AND PER PROCEDURE

NOTES: UNLESS OTHERWISE SPECIFIED

A3015-1 ASSEMBLY

 **Isotope Products**
Laboratories
An Eckert & Ziegler Company
VALENCIA, CALIFORNIA 91355

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

DESIGN
EZ/DI

DRAWING TITLE
SPECIAL 225 CAPSULE,
GAMMA POINT SOURCE

TOLERANCES ON			
FRAC- TION	DECIMAL	ANGLE	
	X	XX	XXX
±1/64	±.1	.01	.002
			±.5°

SCALE
NONE

SERIES TITLE
INDUSTRIAL SOURCES, HIGH INTENSITY
GAMMA AND NEUTRON

THIRD ANGLE PROJECTION



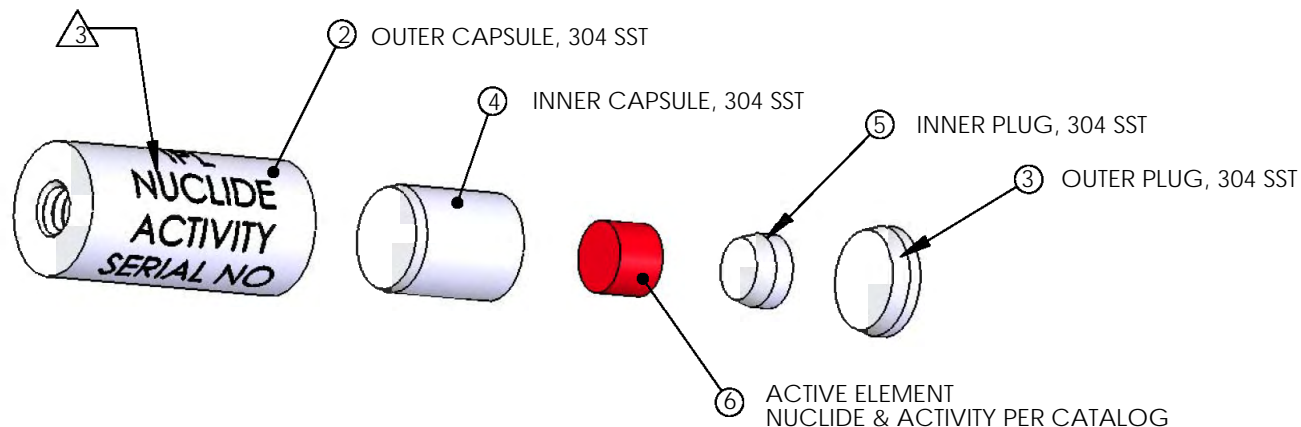
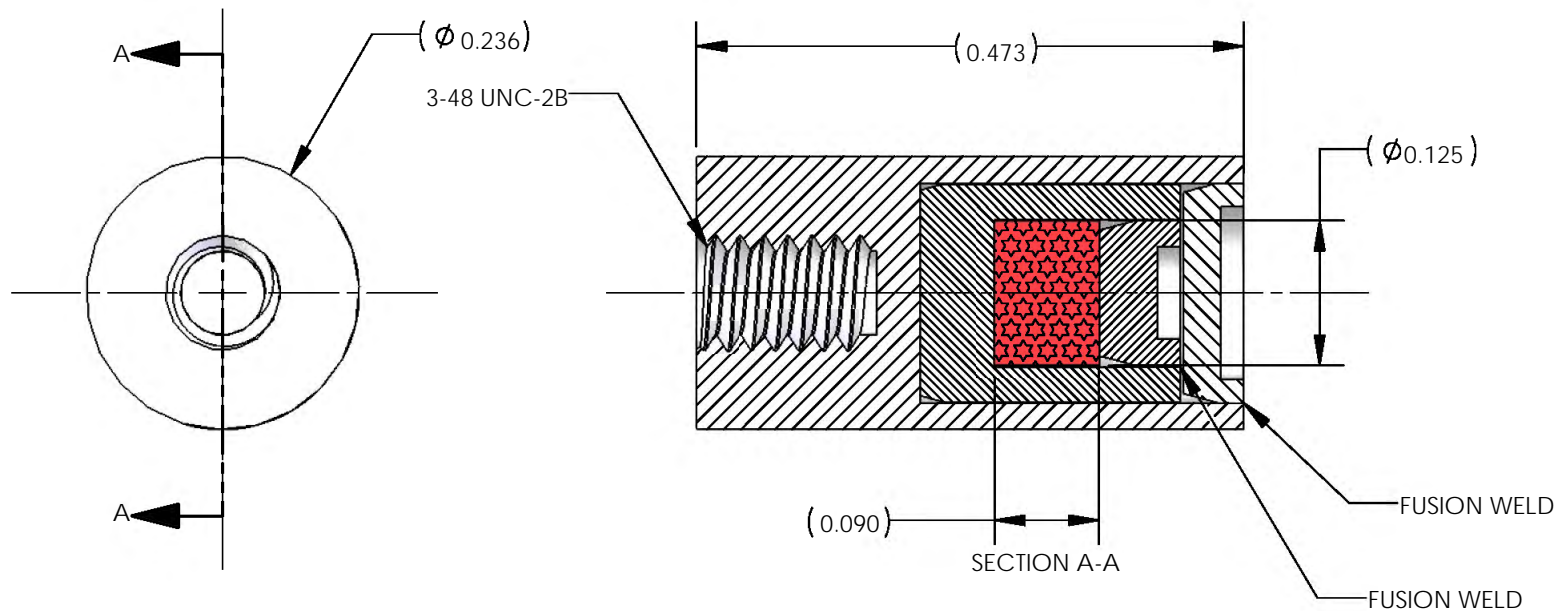
SIZE
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CAGE CODE
32993

REVISION
G


DRAWING NUMBER
3015

SHEET
4 OF 8

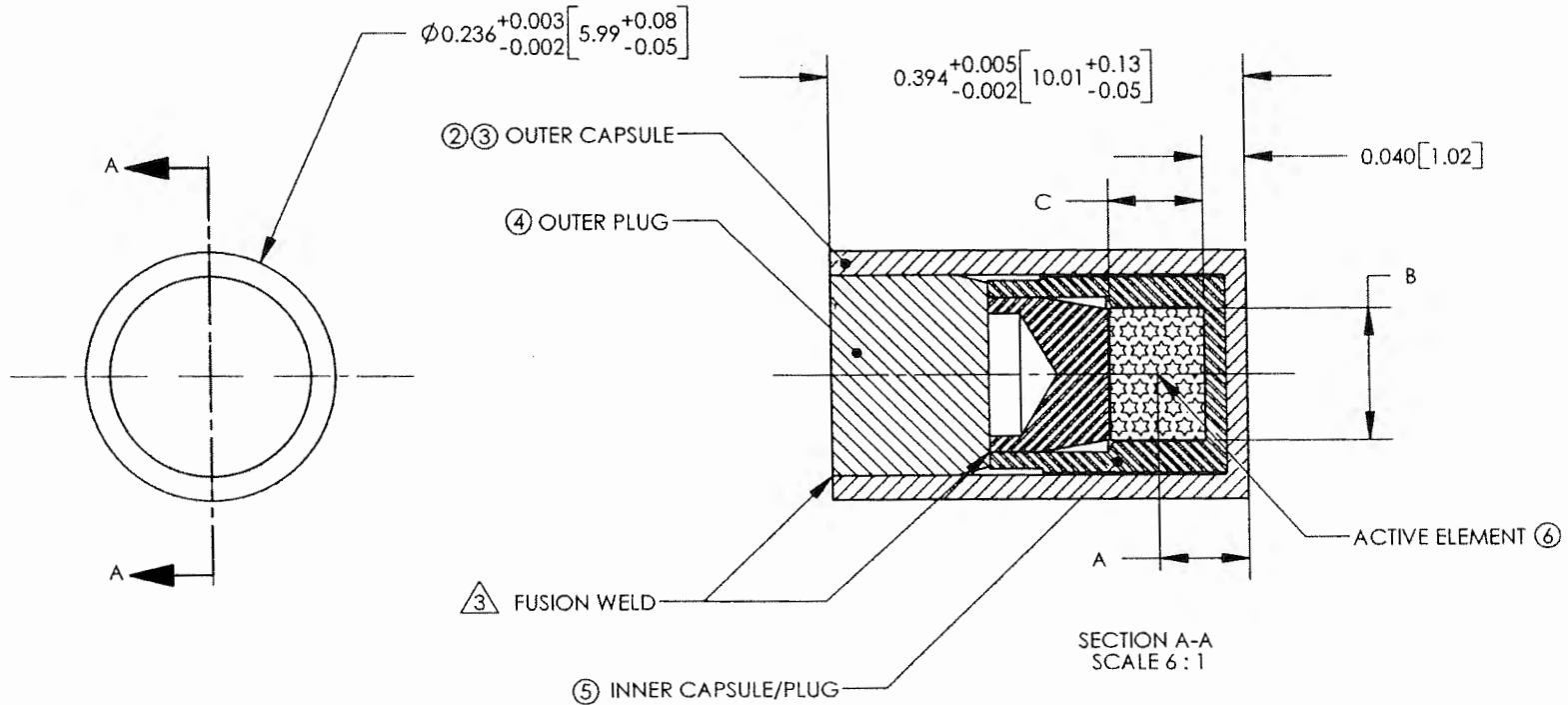


1. ENGRAVE CHARACTERS 0.060 HIGH X 0.003 DEEP MAX AS SHOWN (BLACK FILL)
 IPL, NUCLIDE, ACTIVITY, SERIAL NO.
 2. PACKAGE AND IDENTIFY PART NUMBER THEREON
 1. ASSEMBLE PER ENGINEERING DRAWING
 NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3023 GAMMA METRICS ASSEMBLY

 <p>Eckert & Ziegler Isotope Products</p> <p>VALENCIA, CALIFORNIA 91355</p>	CAGE CODE	32993	DRAWING SIZE	LETTER	DRAWN	JMD/RLT	TITLE			GAMMA METRICS	
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.				ME/CHECKER	SC	SERIES TITLE				HIGH INTENSITY GAMMA AND NEUTRON SOURCES
	TOLERANCES (UNLESS OTHERWISE SPECIFIED)				ENGINEER	EZ	DRAWING NO.				3023
	X.XXX ± .002 INCH	ANGULAR TOLERANCE OF 0°±30"		SCALE	6:1	REV	B	SHEET		3 OF 7	
X.XX ± .005 INCH	FRACTIONAL DIMENSIONS ± 1/32"										
X.X ± .03 INCH	REFERENCE DIMENSIONS () N/A										
X. ± .1 INCH	SURFACE ROUGHNESS μINCH MAX										

	A3024-1	A3024-3
A (CENTER OF ACTIVITY)	0.085[2.16]	0.085[2.16]
B (ACTIVE DIAMETER)	0.125[3.18]	0.125[3.18]
C (ACTIVE LENGTH)	0.090[2.29]	0.090[2.29]
ENGRAVING	STANDARD	CUSTOMER SPECIFIC



△ FUSION WELD AS REQUIRED 0.015 MINIMUM WELD DEPTH
 2. PACKAGE AND IDENTIFY PART NUMBER THEREON
 1. ASSEMBLE PER ENGINEERING DRAWING.
 NOTES: UNLESS OTHERWISE SPECIFIED

A3024-1/ A3024-3 ASSEMBLY

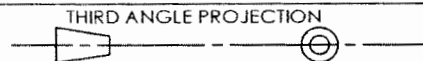

Eckert & Ziegler
 Isotope Products
 VALENCIA, CALIFORNIA 91355

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH-SIZES, METRIC UNITS [mm] ARE IN MILLIMETERS.
 TOLERANCES (UNLESS OTHERWISE SPECIFIED)
 X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0°±30'
 X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32"
 X.X ± .03 INCH REFERENCE DIMENSIONS (I) N/A
 X. ± .1 INCH SURFACE ROUGHNESS μINCH MAX
 ALL DIMENSIONS ARE FINISHED DIMENSIONS

DRAWN
 RLT
 ME/CHECKER
 LF
 ENGINEER
 RMD

TITLE
 HEG SOURCE, 1cm LENGTH
 SERIES TITLE
 INDUSTRIAL SOURCES,
 HIGH INTENSITY GAMMA AND NEUTRON

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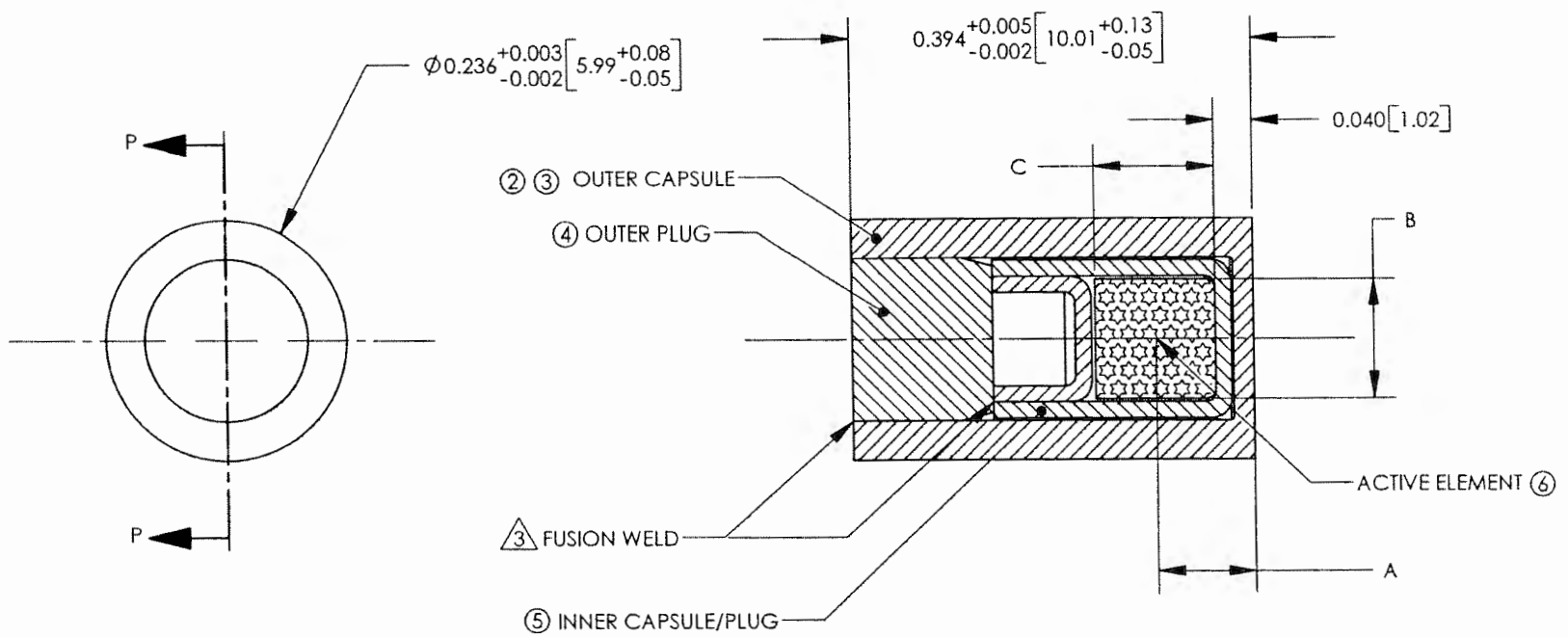
SCALE
 NONE
 SIZE
 A

CAGE CODE
 32993
 DRAWING NO.
 3024

REV
 F

SHEET
 4 OF 8


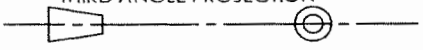
	A3024-2	A3024-4
A(CENTER OF ACTIVITY)	0.099[2.51]	0.099[2.51]
B(ACTIVE DIAMETER)	0.118[3.00]	0.118[3.00]
C(ACTIVE LENGTH)	0.118[3.00]	0.118[3.00]
ENGRAVING	STANDARD	CUSTOMER SPECIFIC



SECTION P-P
SCALE 6:1

- 3. FUSION WELD AS REQUIRED 0.015 MINIMUM WELD DEPTH
 - 2. PACKAGE AND IDENTIFY PART NUMBER THEREON
 - 1. ASSEMBLE PER ENGINEERING DRAWING.
- NOTES: UNLESS OTHERWISE SPECIFIED

A3024-2/A3024-4 ASSEMBLY

 Eckert & Ziegler Isotope Products VALENCIA, CALIFORNIA 91355	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH-SIZES. METRIC UNITS (mm) ARE IN MILLIMETERS.	DRAWN RLT	TITLE HEG SOURCE, 1cm LENGTH				
	TOLERANCES (UNLESS OTHERWISE SPECIFIED) X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0°±30' X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32" X.X ± .03 INCH REFERENCE DIMENSIONS (J) N/A X. ± .1 INCH SURFACE ROUGHNESS μINCH MAX ALL DIMENSIONS ARE FINISHED DIMENSIONS	ME/CHECKER LF	SERIES TITLE INDUSTRIAL SOURCES, HIGH INTENSITY GAMMA AND NEUTRON				
	THIRD ANGLE PROJECTION 	ENGINEER RMD	SCALE NONE	SIZE A	CAGE CODE 32993	DRAWING NO. 3024	REV F



U.S. Department of
Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

East Building, PHH-23
1200 New Jersey Ave, SE
Washington, D.C. 20590

CERTIFICATE NUMBER: USA/0356/S-96

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USA